

A 'BUSMAN'S' HOLIDAY IN THE ABU HILLS.

BY

CHARLES McCANN, F.L.S.

(*One plate and one text-figure*)

The Abu Hills are an enormous mass of gneissic rock rising steeply out of the plain, and standing well apart from the rest of the Aravalli Range. The highest peak, Guru Sikar (Shunkar), rises 5650 feet above sea level and is crowned with a shrine to Dhuttashri, into the construction of which a conveniently weathered bolder has been incorporated. From the Oria Dak Bungalow this edifice appears like a gigantic statue of Buddha. Guru Sikar is the highest point between the Himalayas and the Nilgiris. The Abu rocks weather in a most peculiar way, and often assume fantastic shapes. To wit, the famous Toad Rock which when viewed from a certain angle looks like a gigantic toad ready to take plunge into the Naki Lake below. A hill face pitted with hollows is known to the school boys as 'Spongy'. The hollows of 'Spongy' are occupied by vultures and swifts. There are other rocks of note which also have appropriate names. The hills are clad in deciduous forest, the vegetation standing out picturesquely against the masses of grey rock. The plateau, with an average height of nearly 4000 feet, is occupied by the well-known hill station of Mt. Abu—a small patch of territory leased to the British Government by the Sirhoi State. This patch is well demarcated by white boundary pillars standing like sentries on the hills and in the valleys—and richly ornamented with festoons of 'red tape'! Nevertheless it is an 'oasis' in the Rajputana desert, and a delightful place for a holiday. To the naturalist Abu offers a fair range of animal and plant life; to the archeologist some objects of interest; to the photographer and artist some beautiful studies; to the mountaineer many slippery crags; to the squatter many a hard rock! Such is the place I selected for a holiday with my little family. My boys are there at school. But to me Mt. Abu is more than just a place for a holiday. It was there that I was initiated into the mysteries of botany, it was the scene of my first botanical tour in May 1916 in company with my old friends the late Fr. Blatter and Prof. Hallberg—thus Mt. Abu is a mile stone in my biological career.

At the time of my first visit there was no regular bus service, the journey up had to be undertaken in tongas, the luggage coming up in bullock carts. However, on that particular occasion we were lucky to find a solitary blue (I cannot forget the colour) car at Abu Road. Though the vehicle definitely looked more fit for the scrap heap than for a journey up the hills, its enterprising owner volunteered to risk it and promised to be up in a couple of hours. But we had our doubts, grave doubts. As a matter of fact, it took us twelve hours to cover a distance of fifteen miles, for the car broke down for good three miles out of Mt. Abu and we had to

walk the rest of the journey in the dark! It is the shortest journey I have ever done in the maximum of time! By the end of May Mt. Abu's first set of omnibuses was in commission; and now there is a regular service up the Mount.

Fr. Blatter had a special aptitude for teaching a silent, but forceful, lesson; and at his school I was taught my first botanical lesson and first binomial. In my enthusiasm I made a wild grab at a withering plant and brought it to him. Fr. Blatter looked on, and kept his peace. I had scarcely touched the plant than my hand began to smart; I scratched it quietly as if there was nothing wrong, but a little later my fingers were on fire, I experienced a most unpleasant sensation. And then very quietly, 'This is *Girardinia neterophylla*, a nettle,' said the old man. The fact that it was a nettle I had already learnt—nor did I forget the binomial. I was to find out in course of time that this nettle will penetrate clothing and is to be given as wide a berth as possible.

On the 7th October (1941) we left Bombay and arrived at Abu Road on the 8th afternoon. There was nothing to report *en route* except that owing to the vagaries of the monsoon this year, the crops appeared to be rather poor. Soon after our arrival at Abu Road we left by bus for the Mount. Everything looked fresh, but the heat and the draught were already changing the grasses from green to khaki. At Chippabari the bus stopped for a breather; so I decided to stretch my legs. We were already 2000 feet up—a thousand feet above the plain. The first thing that caught my eye was my 'auld acquaintance', *Girardinia*, in fine fettle. The sight of it rushed me back through the years, back to May 1916 and my first botanical lesson. I became reminiscent for a while. My dear old companions returned from the grave, and in fancy we were again together on these hills, but I am the only one left of that 'trinity'. As I walked down the road and looked into the gully between the hills I awakened from my reverie to the presence of clouds of butterflies. The flight seemed abnormal and I stood and watched a while. The insects all seemed to be going in the same direction. Was it a migration flight? While I was making a mental note of the species involved, the impatience of the bus driver to continue the journey was audibly expressed on his horn. I cursed him, but hurried to put an end to the ear-rending honks. I took my seat, and as we proceeded kept pondering over the flight of the butterflies. In the gully they were probably taking up their positions for the night. When we reached the top there were no signs of them anywhere; it was already late in the afternoon, long past bed-time in the butterfly world.

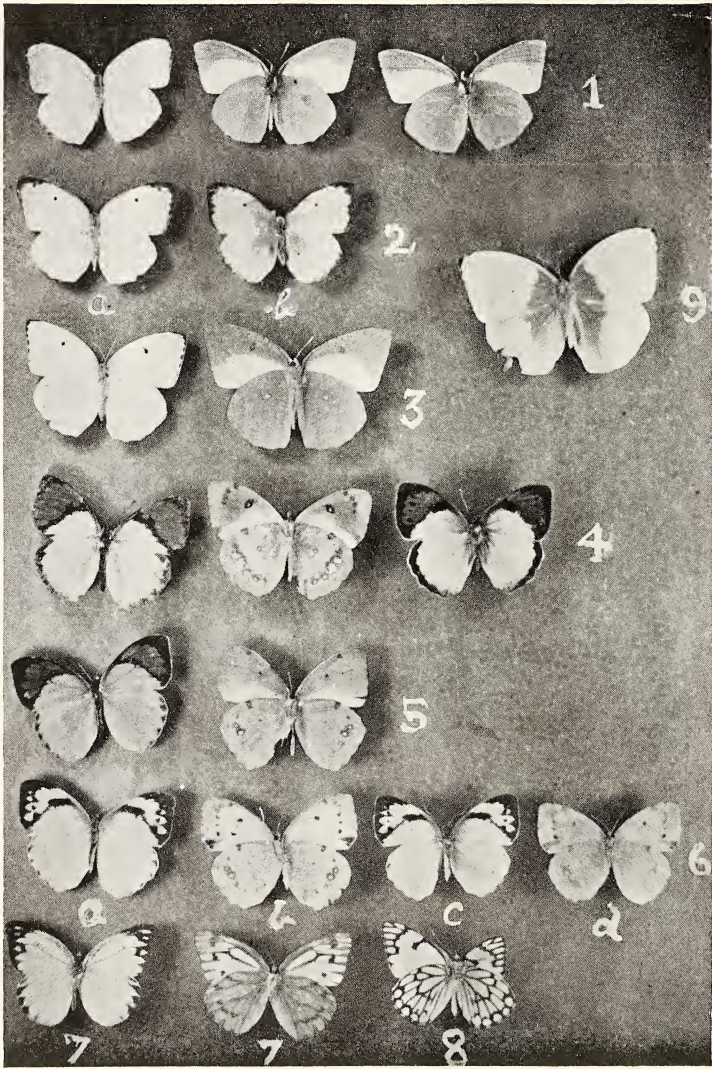
After Arna, a police post on the way up, I kept an eye on the cliffs bordering the road for another old acquaintance, this time a sedge, *Eriophorum comosum* Wall. A curious point about this plant is that it appears to favour the northern and north-eastern faces of the cliffs, between 3000 and 3300 ft. Its deep green leaves and cottony inflorescence look pretty against the dark-grey rocks. So far as I can remember, I have not found this sedge elsewhere on these hills. A little higher up, below the toll-bar, willows (*Salix tetrasperma* Roxb.) growing in the rocky bed of a stream, were in full bloom.

At the toll-bar my journey ended. There we found our elder son, Carl, patiently awaiting our arrival to conduct his mother to the house where she was to stay. The sun was now steep in the west, and the vegetation cast long deep shadows. As I threaded my way to the bungalow where I was to stay, I again found myself pondering over the flight of butterflies, only to be disturbed by two mongooses (*Herpestes edwardsii*) fighting on the road, and by the shrill call of the Five-striped Squirrel (*Funambulus pennanti*). There are two species of mongooses occurring on these hills; *H. edwardsii* which ranges from the plain to the top, and *H. smithi* which is confined to the hills. The black tail-tip and darker, brownish coat immediately distinguish this latter species from the Common Mongoose. Of the two, *H. edwardsii* definitely appears to be more predominant. The striped squirrel is extremely common. Passing over an Irish bridge I noticed that the surface of the stream was well-stocked with patches of Whirligig Beetles (*Dineutes indicus* Aube.). They were lazily drifting in batches on the surface of the water, like so many black seeds, but my shadow sent them off girating in all directions, a medley of movement. At length, I reached the bungalow and settled down to a welcome tea amid old friends—all school masters—my hosts. Next day there were to be the school sports, a big function and that fixed the conversation for the evening.

Next morning I was left to myself, so I wandered out into the garden in search of some natural history. At about 9 a.m. the Painted Ladies (¹ *Vanessa cardui* Linn.) commenced to arrive and sail about, like little yachts on the zinnia flowers. Their numbers increased till they were quite plentiful; but towards 4 p.m. all disappeared again to reappear next morning with almost clockwork regularity. Now and again, there was the deep humming sound of a brown day-flying Hawk-moth [*Macroglossum belis* (L.)] or a Bee-hawk (*Cephonodes hylas* L.), both very restive creatures. Of the two *Macroglossum* was by far the commoner. It arrived early, some time between 9 and 9-30 a.m., and visited throughout the day. Towards evening it seemed to be more plentiful but to become much shier as night was setting in. The moths visited the yellow florets of the zinnias, the dahlias, the flowers of the cannas, and a blue acanthaceous plant. Between 9-30 and 10 a.m. commenced the flight of pierids, all going in the same direction. At first the scouts, then larger and larger formations which became exceeding dense between 1-30 and 2 p.m. After this the ranks thinned out rapidly and by 3-30 p.m. the last stragglers had disappeared. It was a definite migration. There was a strong gale blowing, and the insects travelled up wind. Most of them were in a very great hurry, and few ever settled. This procession brought back to me the lines of the immortal Omar:—

‘What, without asking, hither hurried *Whence?*
And, without asking, *Whither* hurried hence!’

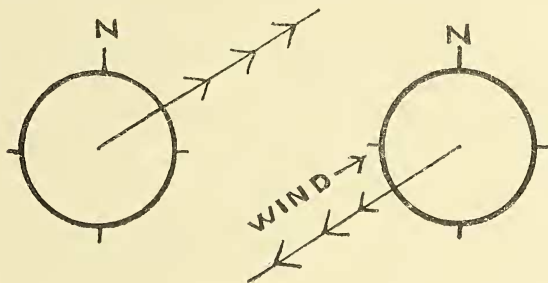
¹ A known migrant.



BUTTERFLIES ON MIGRATION.

Row 1: *Catopsilia pyranthe minna* Herbst. **Row 2:** 2a *C. pyranthe minna*; 2b *C. crocale* subsp. **Row 3:** *C. florella gnoma* F.; **Row 4:** *Ixias marianne* Cr. **Row 5:** *I. pyrene satadra* M. **Row 6:** 6a, 6b, *I. pyrene* ♀♀ without orange tip; 6c, 6d, similar to 6a and 6b but smaller and with less prominent markings on underside. **No. 7:** *Iluphina nerissa evegate* Cr. **No. 8:** *Belenois mesentina* Cr. (damaged). **No. 9:** *Catopsilia crocale* Cr.

I regretted not having brought my net, but I spent much time catching with my fingers those that settled till I managed to rig up a net from an old mosquito curtain. At lunch I mentioned the flight to my companions and was immediately informed that the



5-7 OCT.

8-17 OCT.

DIRECTION OF FLIGHT OF MIGRATING BUTTERFLIES.

present flight was nothing compared with what had gone before. Further enquiries elicited the fact that the migration commenced on the 5th October, when the insects were travelling in the opposite direction, in clouds! I watched this migration day after day, the numbers gradually diminished and after the 17th of the month there were but a few left behind. These did not seem to be in the same great hurry. I noted that incidentally the wind had also died down. At a rough estimate from 50-80 butterflies crossed a line of 50 yards per minute when the flight was at its peak. The elevation at my point of observation was nearly 4000 ft. The butterflies climbed over the hills, they dropped down into the valleys and up again, but always preserved the direction and never flew more than some 40 or 50 ft. above the ground.

The butterflies involved in this general migration were in order of numbers:—

(1*)	<i>Catopsilia pyranthe minna</i> Herbst.	...	very common
(2*)	<i>Catopsilia florella gnoma</i> F.	...	very common.
(3)	<i>Huphina nerissa evegate</i> Cr.	...	common
(4)	<i>Ixias pyrene satadra</i> Moore	...	common
(5)	<i>Ixias marianne</i> Cr.	...	common
(6 ^r)	<i>Catopsilia crocale</i> Cr.	...	occasional
(7 ¹)	<i>Catopsilia pomona catilla</i> Cr.	...	occasional
(8)	<i>Belenois mesentina</i> Cr.	...	very occasional

Though the majority of *Ixias* kept to the general line of advance some were seen to fly in both the forward and backward directions.

Besides these, **Terias hecabe* L. and **T. libythea* Fab. seemed to follow in the line of flight, but were not plentiful. Among the

¹ Those marked with an asterisk have been recorded as migrants by Mr. Williams.

Ixias there were many females without the orange tip on the fore-wings.

Among other butterflies caught during the trip were:—**Papilio demoleus* L.; **Danaus limniace* Cr.; *D. plexippus*, a pigmy form; *Precis orithyia* L.; *Atella phalantha* Drury; *Huphina phryne* F.; **Hypolimnastis missippus* L. ♀, ♂ seen; and a few Hesperids and Lycaenids.

In volume xl, p. 439 of the *Journal*, Mr. C. B. Williams published an interesting article, *The Migration of Butterflies in India*, in which he enumerated all the known butterfly migrations in the country. In table III of this article, we find that the nearest recorded flight to Mt. Abu is from Deesa, Palanpur State, and was observed by Nurse between 25 and 27 August 1901. The direction of the flight was North-West and the species involved was *Catopsilia pyranthe*, a known migrant. The present record is also of *C. pyranthe minima*, but accompanied by *C. florella gnoma* in almost equal numbers, and other species.

At dusk the flowers were visited by a few hawk-moths, *Hippotion celerio*; *Nephele didyma*; *Macroglossum*. The first two concentrated chiefly on the cannas.

While standing on the verandha of the bungalow one afternoon I saw a pair of *Danaus limniace* in copula—nothing extraordinary; but there appeared to be something wrong with the couple. As soon as they settled, I caught them. To my great surprise I discovered that the pendant one, the female, was dead, headless, bone dry, and the wings folded the reverse way! Judging from the condition of the corpse and the worn appearance of the living one, the living insect must have trailed its dead partner about for days! I have seen in collections, insects killed while in copulation; but this is the first time I have come across such an accident in the natural state. This danaid was more common than *D. plexippus* of which I saw a few and caught one—a pigmy.

Atella phalantha Drury seemed to favour *Mallotus* and was seen in plenty round the willows (*Salix tetrasperma* Roxb. in flower) in company with Pierids and Lycaenids. **Papilio demoleus*, as usual, hovered around lime trees while *Huphina* and *Ixias* were partial to *Capparis* spp. and *Vogelia indica* Gibs., this latter only being in flower. *Hamiltonia suaveolens* Roxb. and *Hiptage Madablota* Gaertn. were in full bloom and attracted hosts of Pierids, Lycaenids and the Moth *Macroglossum*. *Kydia calycina* Roxb. was just about to flower.

On the 20th Mr. Gonsalves and I decided on a walk down the road to Arna. There was nothing new in the lepidopterous line so I concentrated more on botany. In a well along the road I found a species of *Lemna* (Duckweed). It covered the entire surface of the water and to my luck found it in flower. This was a good find as I much needed this plant from this area. *Eriophorum comosum* Wall., the sedge, I referred to above, was there in flower and fruit and I was glad to get some fresh material. On the

¹ Those marked with an asterisk have been recorded as migrants by Mr. Williams.

return journey I heard langurs swearing, and turning to my companion I said 'There is a tiger or panther about'. Barely were the words out of my mouth when we heard a headsman shouting that a *bhag* (a name for either feline) had killed one of his animals. The following day we set out along the old road which once led down to the plains. On the way we passed a shikar party returning home, after an unsuccessful trip. Off the road lay the body of a young buffalo which had been killed during the night by a tiger. The buffalo had been put out as bait. While on the subject of game, it is interesting to note that tigers and panthers are on the increase. The reason is obvious: tigers are preserved as 'Royal Game'. This increase is not, however, without its repercussions. In years gone by pig and sambhar were fairly plentiful, particularly the former. Today both animals are scarce and in consequence cattle lifting is on the increase to the detriment of the people who must drive their herds into the hills in search of grazing. The felines have become so bold that they will kill in broad daylight. Occasionally a herder is mauled. As there is little other game in these hills the pig and sambhar form the main source of the food supply for these great felines, apart from domestic animals. With the disappearance of the natural food supply these great cats will turn their attention to wholesale slaughter of domestic animals unless steps are taken to thin out their numbers. The sloth bear is also a member of the fauna. This clumsy 'sack of black hair' is well able to hold his own in these hills. There are plenty of retreats and it is a good climber.

Turning from big game to smaller denizens of the wilds, I noticed a remarkable difference in the numbers of the grey jungle fowl (*Gallus sonneratii* Temm.). Formerly these birds were very numerous and they could be heard on all sides heralding the day and keeping up a diurnal concert, but today their familiar note is scarce. To my mind, this decrease is not entirely due to shooting, but to the increase in the mungoose population—a serious menace to ground-breeding birds. In spite of the fact that mungoses keep the reptile fraternity in check, under the circumstances, I would suggest the thinning out of their numbers if the ground-breeding feathered game are to survive. The spur fowl (*Galloperdix s. caurina* Blanf.) though still more numerous than the jungle fowl, appears to be fewer in numbers and is likely to share the same fate as its relative. Hares (*Lepus* sp.) are still plentiful. In a restricted area, like the Abu Hills, too strict a preservation must eventually lead to a depopulation of certain types of its fauna, as the food supply is naturally limited. I am afraid I may be treading on somebody's corns, but this is merely my honest opinion as a casual visitor to these hills for many years. As a naturalist I should like to see the fauna of this island in the desert preserved in its proper balance.

Among mammals I must not forget the common langur (*Semnopithecus entellus*) which is much in evidence and occasionally a nuisance. In the heart of the station there is a fairly large colony of flying-foxes (*Pteropus giganteus*) distributed on silver oaks (*Grevillea robusta*) and eucalyptus trees. I was informed that during the cold weather the bats left the hills for a warmer clime. Observations by interested residents on the time of departure

and return of these bats to the hills would be welcome. *Hyaenas* (*Hyaena hyaena*) were occasionally heard but jackals (*Canis indica*) are absent, though common enough on the plain below. Jungle cats (*Felis affinis*) are occasionally seen. Civet cats are not uncommon. Like all other places Mt. Abu has its fair complement of small rodents and bats.

To return to the walk along the old road; we wandered on past the kill till we came to a stream. Here on some almost vertical rocks I spotted a *Begonia* (near *B. trichocarpa* Dalz.) in fruit, which I do not remember having seen before. This was the prize of the day. Just above the *Begonia* was the nest of the house swift (*Micropus affinis affinis* L.) in a pocket in the rock. The bottom of the pocket was built across, and formed the floor of the nest. Internally it was lined with feathers but externally it was composed of pellets of mud. The nest contained a nearly fully fledged young and the male parent. According to the *Fauna* (2nd Ed.): 'They breed from February to September in the Plains and have two or more broods, but in the Hills breed from March to June.' Proceeding from here we passed through plenty of Spear-grass (*Heteropogon contortus* R. & S.) and tufts of Lemon grass (*Cymbopogon Martinii* Stapf). In places dense growths of *Strobilanthes callosus* Nees bordered the narrow path which now formed the road—the forest was reclaiming its own. Tired of picking out spear-grass from our clothes we decided to return home.

On the 22nd I set out on my last walk with my companion. This time we visited a small artificial lake not far from the school. On our way we saw a young monitor lizard (*Varanus monitor*) which quickly disappeared down a crevice between two rocks. Bloodsuckers [*Calotes versicolor* (Daudin)] were plentiful. On arrival at the dam of the lake a mongoose (*H. smithi*) beat a hasty retreat. On examining the shores of the lake I found that they were teeming with the streaked-frog (*Rana lemnocharis* Wiegman) particularly where a little vegetation was coming down to the water's edge. Among some debris left behind by the receding water I found a small frog very beautifully camouflaged. This turned out to be the black-throated frog (*Microhyla ornata* Boulenger). Close examination showed it to be fairly plentiful among the debris, but less common at other points of the lake. This record, I think, is new for this area. The skipper (*Rana cyanophlictis* Schneider) floated leisurely on the surface. In the water were green sponges attached to the rocks, frequently sheltering a crab (*Paratelphusa*) which was frequent in the lake. On the western and north-western shores there were dense growths of *Limnophylla* sp. So dense was the growth in parts that it almost excluded all else. It was in flower, and attracted crowds of butterflies, chiefly Pierids. The *Limnophylla* sheltered hundreds of the streaked-frog. Lastly there appeared the common skink (*Mabuya carinata*) which attempted to keep out of my way, but soon found itself in my collecting bag.

Mt. Abu has its full share of avian fauna, but I will only mention some of its outstanding birds. The first large bird the visitor meets as he enters the station, is Pharaoh's chicken [*Neophron p. ginginianus* (Lath.)] to give it its polite name, in its various stages

of plumage; from the brown juvenile dress with a bluish beak to the white adult plumage with a yellow bill. Going into the station is like entering by the back door. The first points of interest the visitor passes by are the rubbish heaps and incinerators, hence the presence of Pharaoh's chicks. On the roads most vehicular traffic is strictly banned, but as with all bans there is a privileged class exempt. Generally speaking they are the 'upper ten' but in this case it is the 'lower thousand'! The privileged class is the ungainly, wobbly night soil carts that are the favoured ones—all wending their way in slow, leisurely procession to their decanting station. Their approach is a signal to the wayfarers to hold their noses, and a spitting competition by the locals! The 'monsters' are still more offensive to the nostrils than ungainly to the eye. The pariah kite (*Milvus forficata*) is common and is seen in company with Pharaoh's chickens. The fulvous vulture (*Gyps fulvus* *flume*) is a common bird and is often seen near the refuse dumps. It breeds commonly in the numerous pockets in the crags. The jungle crow (*Corvus macrorhynchus* Wagn.) is in ample evidence and replaces on these hills his next of kin, the common crow (*C. splendens*), though the latter is plentiful in the plains and on the lower slopes.

Carrion feeders are not the only birds in Mt. Abu, there are many more of delightful plumage and delicate taste. The common bulbul [*Molpastes cafer* (L.)] is very numerous and at the time was engaged on parental duties. I saw numerous fledged young following their parents. The red-whiskered bulbuls (*Otocorys jocosus*) were fewer. Three kingfishers, the white-breasted [*Halcyon smymensis fusca* (Bodd.)], the pied (*Ceryle rudis leucomelanura* Rech.) and the little kingfisher [*Alcedo atthis* (L.)] haunted the streams. The hoopoe, I did not see. I mention this fact because I have seen it during the winter. The jungle babbler (*Turdoides somervillei sindianus* Ticehurst) noisily hunted in the bushes and undergrowth. Bush Robins strutted about the grass or perched on rocks. In winter there is a general influx of birds of prey and other migrants.

I must now make a few observations on the flora. I have already remarked on the type of vegetation. The currunda (*Carissa carandas* Linn.) seems to predominate, and in the season its sweet-scented flowers give the air a delightful aroma. A plant which, I think, is becoming a serious pest, is a thorny straggling shrub, *Caesalpinia sepiaria* Roxb. It is definitely gaining ground. The foliage is beautiful enough, and the lemon-coloured flowers lend a touch of colour, but the ugly recurved thorns are a nuisance. It is easily distinguished by its boat-shaped pods which often persist for a considerable time on the bushes. Another plant which appears to be threatening the station is a Composite, *Xanthium strumarium* L. I do not remember having seen it here in such abundance as this year. The area round the rubbish heaps and the gutters along the roadside in certain places are overrun with it. It is common enough in the plain and is spreading far and wide along the railway track. This same plant has entered Salsette Island and I first saw it along the railway track at Santa Cruz where I feel sure it was introduced by the railway! Since its first

introduction into Salsette, it is spreading rapidly. The fruits form dense clusters and are armed with numerous hooks which make them suitable for animal or human dispersal. The nettle, *Girardinia heterophylla* Dalz., already referred to, is a hideous pest. Certain gullies and damp places in the hills are filled with a tough grass, *Pennisetum Alopecuros* Nees, which is used locally to make rope. Cattle do not seem to touch it. Perhaps with a little care this grass could be put to a greater use than at present.

The tallest trees in the area are Australian, *Eucalyptus* and silver oak (*Grevillea robusta*). A few peepal (*Ficus religiosa* L.) and Banyan (*F. bengalensis* L.) have also attained great size. Some specimens at Chippabari are fine examples of the latter. A *Bauhinia* (*B. purpurea* L.) makes a fine show when in flower not far below the toll-bar. *Erythrina* spp. with their scarlet flowers are also attractive in the season and lend a touch of colour to the hills. I must not omit mentioning the *Euphorbia* bushes (often erroneously referred to as cactus bushes—true *Cactus* is purely American. On the plain and the lowest slopes the round stemmed *Euphorbia nerifolia* Linn. is the only one seen, but at the top the angular stemmed *E. ligularia* Roxb. is in sole possession! Why there should be this difference is yet to be disclosed. Altitude is not the explanation as the second species also occurs at sea level. Another question is—How did it get to the mount when it is surrounded on all sides by the round stemmed species?

Garden escapes are not uncommon. The beautiful potato creeper (*Solanum*) is now running wild in certain places. The dispersal of this plant I lay at the door of the common bulbul (*Molpastes cafer*) which eats the ripe berries. An *Ageratum* with fluffy, pale blue flowers, an introduction, is slowly gaining ground in damp places. *Zinnia* and an orange-yellow cosmos-like plant are also seen as escapes.

Lastly, mention is to be made of the mango (*Mangifera indica*) species of *Anogeissus* and the Jambul (*Eugenia Jambolana* Lam.) which here and there form a goodly percentage of the shade trees.

On the 23rd evening we bundled into a bus after saying farewell to our kind hosts and our two boys, as we had decided on a day's stay at Abu Road. Nothing of note occurred en route except that about six miles out of Abu Road we saw a panther sitting on the parapet wall of the road. It was dark when we arrived. That night I noticed a number of toads entering the house. Being so plentiful, I at first took them to be the common toad (*Bufo melanostictus* Schneider), but they did not look as warty as usual. My interest in these creatures amused my friends, but when I commenced collecting them with my hands, my audience was horrified and then commenced a series of fabulous stories. I smiled, and tried to explain some of the beliefs, but fiction is more palatable than truth. The net result of my explanations ended in the comment that I possessed some uncanny power which protected me from harm! A toad is a harmless creature if handled gently. Only rough treatment ruptures the warts on the skin which exude a thick milky secretion with a very powerful acrid smell. At most it may cause a slight irritation, but if the affected parts are washed immediately there are no ill effects.

This common toad turned out to be Anderson's toad (*Bufo andersoni* Boulenger), a species widely distributed in Rajputana. Among the toads I captured were also a couple of the common toad, but Anderson's was by far the commoner of the two. During the day they live in hollow masonry, numbers huddling together in the same hollow. At dusk they emerge and make for water or damp spots. In such places they sit for a considerable time with the lower surface pressed to the ground, absorbing water all the time. The skin is soon distended with a quantity of water—the supply for the next 24 hours. Such specimens when handled are able to eject a certain amount of the water through the cloaca. The toads and frogs do this to 'lighten' themselves so as to be able to jump more effectively. This habit is quite naturally interpreted by the 'vulgar' as urinating, and 'God help you if you get any of it on you!' So say all of us! This is a common belief. Actually the water exuded is *aqua pura* as it was absorbed through the skin which acts as a perfect filter. Dissection indicated that the genital organs were becoming active. During the cold season these animals 'disappear' to their winter quarters to reappear when the weather is more favourable. They breed chiefly during the rains. Anderson's toad appears to be much more active than the common toad, and looks less like a 'contented profiteer'! It does not grow so large, is far less warty, and is devoid of the strong bony ridges on the head which give the common toad its 'beetling brows'. The common toad is common on the Mount, but I have not seen Anderson's toad up there¹.

On the 25th afternoon we left Abu Road for Bombay—*Au revoir* Abu, I may come back some day! In conclusion I must express our best thanks to our hosts up at the Mount and in the plain for the very pleasant holiday, 'busman's holiday' though it was—that is the worst of a man with a job and a hobby in the same profession! Any way, thank God it is so! I am happy—a naturalist is never alone in the world; he can always converse with Nature, where others, less fortunate than himself, are lost.

A LIST OF SOME OF THE ANIMALS NOTED.

MAMMALS:—

Semnopithecus entellus

Pteropus giganteus

Panthera tigris

Panthera pardus

Felis chaus

Hyaena hyaena

Herpestes edwardsii

Herpestes smithi

Funambulus pennanti

Acanthion leucurus

Lepus

A large colony in the station.

} Common—traces everywhere.

Common on the plain but less frequent on the hills.

Common on the plain and on the hills.

Very common on the plains and on the hills.

Restricted to the forested areas on the hills.

Very common.

¹ I have since taken specimens on the Mount.